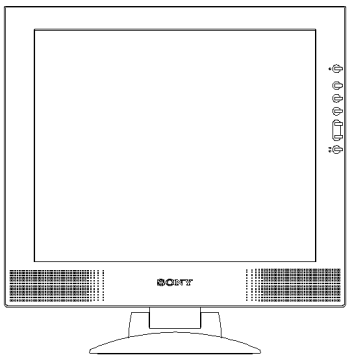
SDM-M51D

SERVICE MANUAL

US Model
Canadian Model
AEP Model



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SPECIFICATIONS

LCD panel	Panel type: a-Si TFT Active Matrix Picture size: 15.1 inch
Input signal format	RGB operating frequency* Horizontal: 28-64 kHz Vertical: 48-75 Hz
Resolution	Horizontal: Max. 1024 dots Vertical: Max. 768 lines
Video input connector	Analog RGB: HD15 Digital/Analog RGB: DVI-I 29 pins
Input signal levels	Analog RGB video signal: 0.7 Vp-p, 75Ω, positive SYNC signal: TTL level, 2.2kΩ, Positive or negative (Separate horizontal and vertical, or composite sync) 0.3 Vp-p, 75Ω, negative (Sync on green) Digital RGB video signal: TMDS (single link)
Audio output	1W x 2
Headphones jack	Stereo minijack Accepts impedance of 16-48 Ω
Audio in jack	Stereo minijack Accepts impedance of 47 kΩ Accepts level 0.5 Vrms

Power requirements	100-240 V, 50-60 Hz, 0.4 - 0.2A (including AC adapter)
Power consumption	Max. 22W (including AC adapter)
Operating temperature	5-35 ℃
Dimensions (width/height/depth)	Display (upright): Approx. 387 x 345 x 180 mm (15¼ x 13⅝ x 7⅛ inches) (with stand) Approx. 387 x 296 x 48 mm (15¼ x 11¾ x $1^{15}/_{16}$ inches) (without stand)
Mass	Approx. 4.6 kg (10 1b 14 oz) (with stand)
Plug & Play	DDC2B

* Recommended horizontal and vertical timing condition

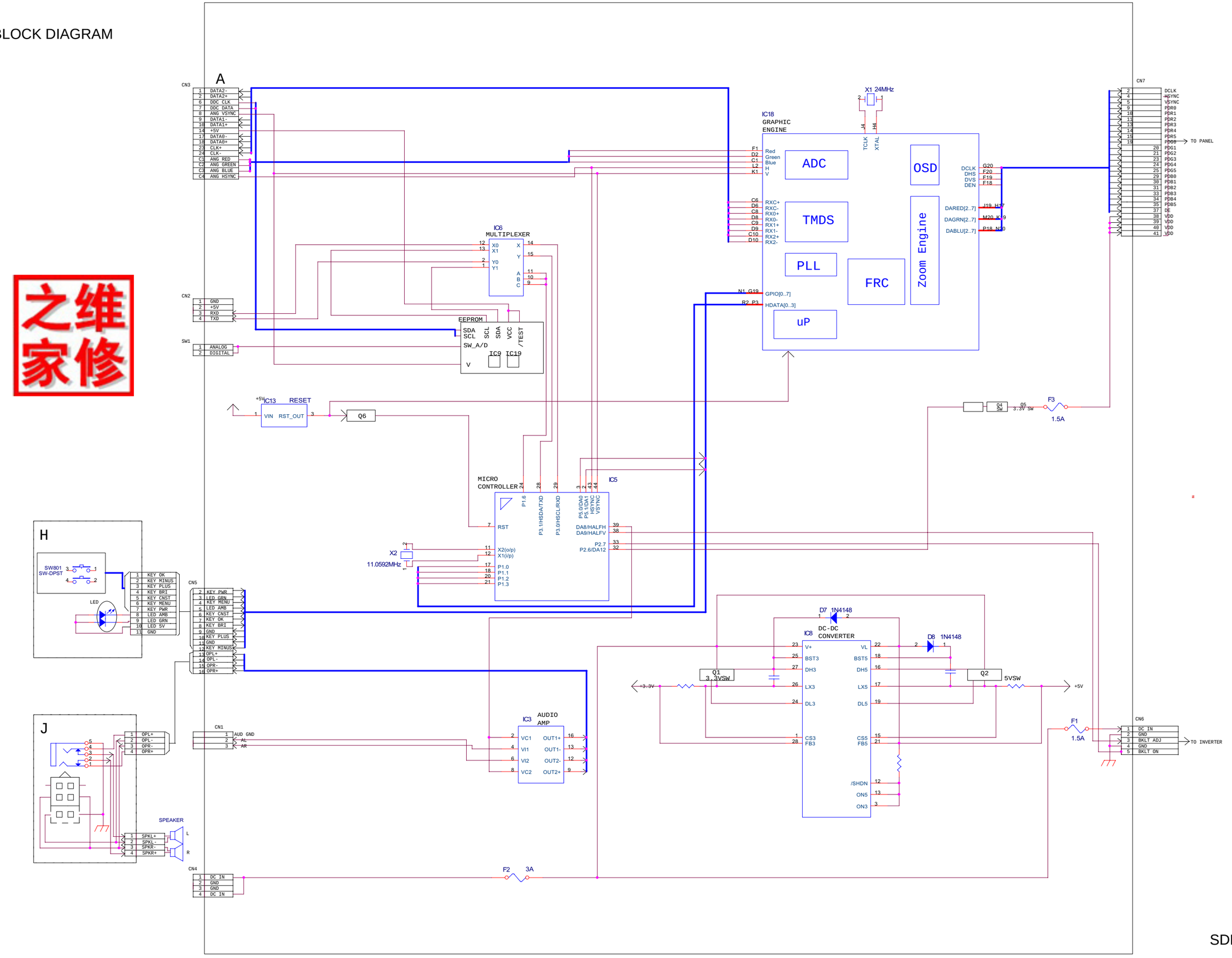
- Horizontal sync width duty should be more than 4.8% of total horizontal time or 0.8 µs, whichever is larger.
- Horizontal blanking width should be more than 2.5 µsec.
- Vertical blanking width should be more than 450µsec.

Design and specifications are subject to change without notice.

TFT LCD COLOR COMPUTER DISPLAY

SONY

3-2 BLOCK DIAGRAM



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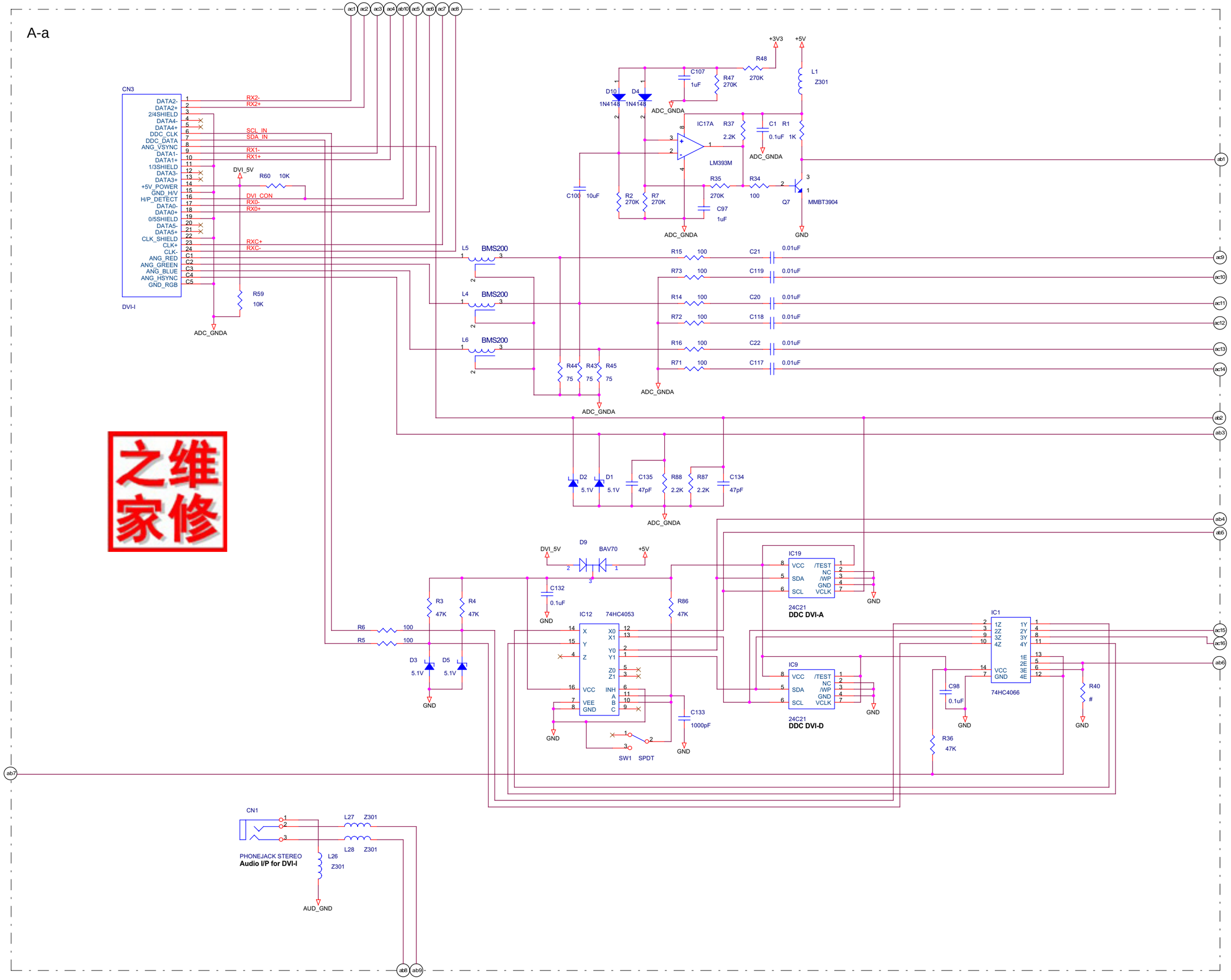
A-a


ac1 ac2 ac3 ac4 ab10 ac5 ac6 ac7 ac8
CN3
DATA2-
DATA2+
2/4SHIELD
DATA4-
DATA4+
DDC_CLK
DDC_DATA
ANG_VSYNC
DATA1-
DATA1+
1/3SHIELD
DATA3-
DATA3+
+5V_POWER
GND_H/V
H/P_DETECT
DATA0-
DATA0+
0/5SHIELD
DATA5-
DATA5+
CLK_SHIELD
CLK+
CLK-
ANG_RED
ANG_GREEN
ANG_BLUE
ANG_HSYNC
GND_RGB
DVI-I
RX2-
RX2+
SCL_IN
SDA_IN
RX1-
RX1+
DVI_5V
R60 10K
DVI_CON
RX0-
RX0+
RXC+
RXC-
R59
10K
ADC_GNDA
+3V3
+5V
R48
C107
1uF
R47
270K
270K
L1
Z301
D10
D4
1N4148
1N4148
ADC_GNDA
IC17A
R37
2.2K
C1 R1
0.1uF 1K
ADC_GNDA
LM393M
C100 10uF
R2
270K
R7
270K
R35
270K
R34
100
Q7
MMBT3904
C97
1uF
ADC_GNDA
GND
L5 BMS200
L4 BMS200
L6 BMS200
R44 R43 R45
75 75 75
ADC_GNDA
R15 100 C21 0.01uF
R73 100 C119 0.01uF
R14 100 C20 0.01uF
R72 100 C118 0.01uF
R16 100 C22 0.01uF
R71 100 C117 0.01uF
ADC_GNDA
ab1
ac9
ac10
ac11
ac12
ac13
ac14
ab2
ab3
D2
5.1V
D1
5.1V
C135
47pF
R88
2.2K
R87
2.2K
C134
47pF
ADC_GNDA
ab4
ab5
DVI_5V
D9
BAV70
+5V
C132
0.1uF
GND
R3
47K
R4
47K
R6 100
R5 100
D3
5.1V
D5
5.1V
GND
IC12
74HC4053
R86
47K
GND
SW1 SPDT
C133
1000pF
GND
IC19
24C21
DDC DVI-A
GND
IC9
24C21
DDC DVI-D
GND
IC1
74HC4066
C98
0.1uF
GND
R36
47K
R40
#
GND
ac15
ac16
ab6
ab7
CN1
PHONEJACK STEREO
Audio I/P for DVI-I
L27 Z301
L28 Z301
L26
Z301
AUD_GND
ab8
ab9

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A-b

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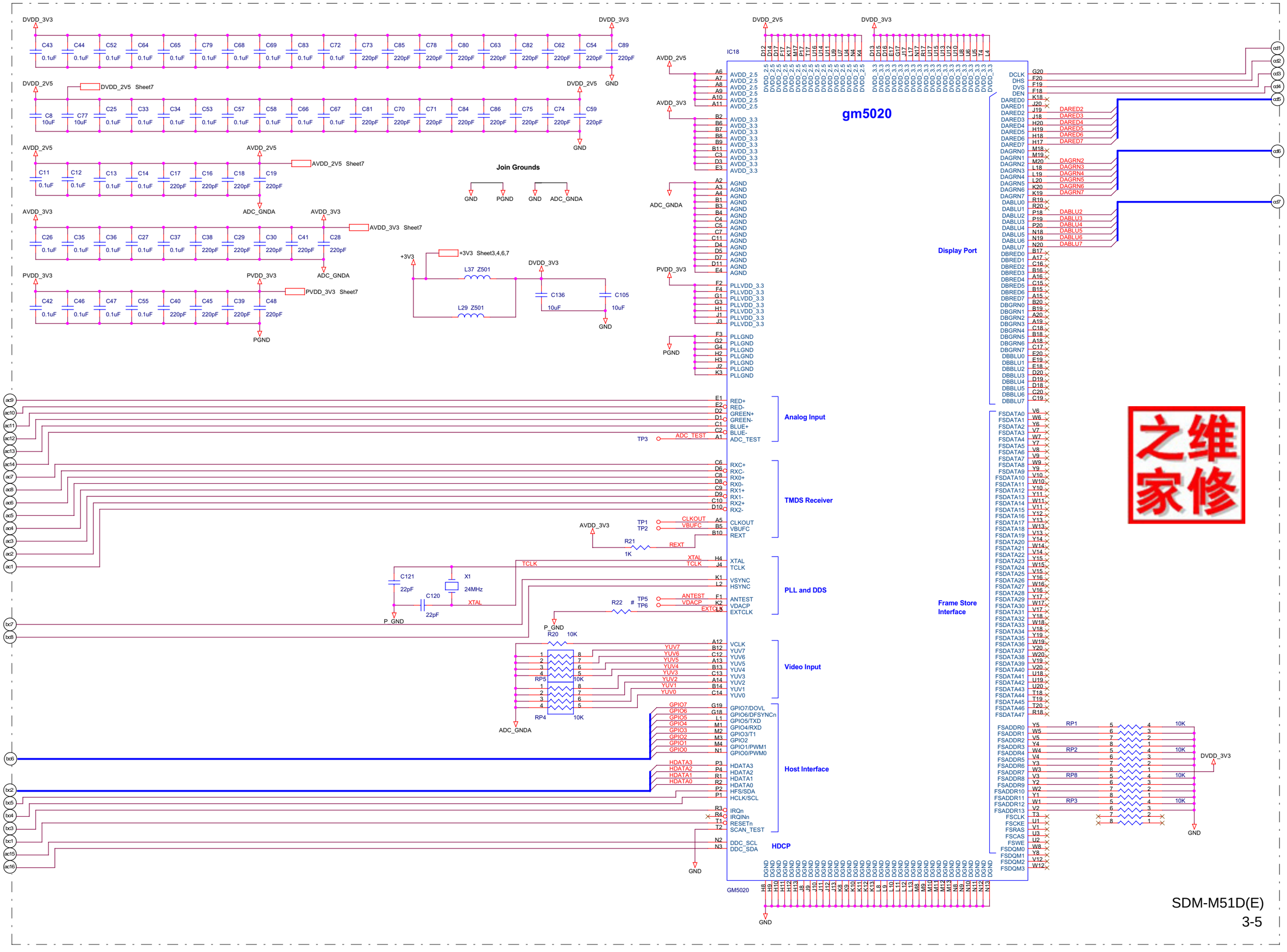
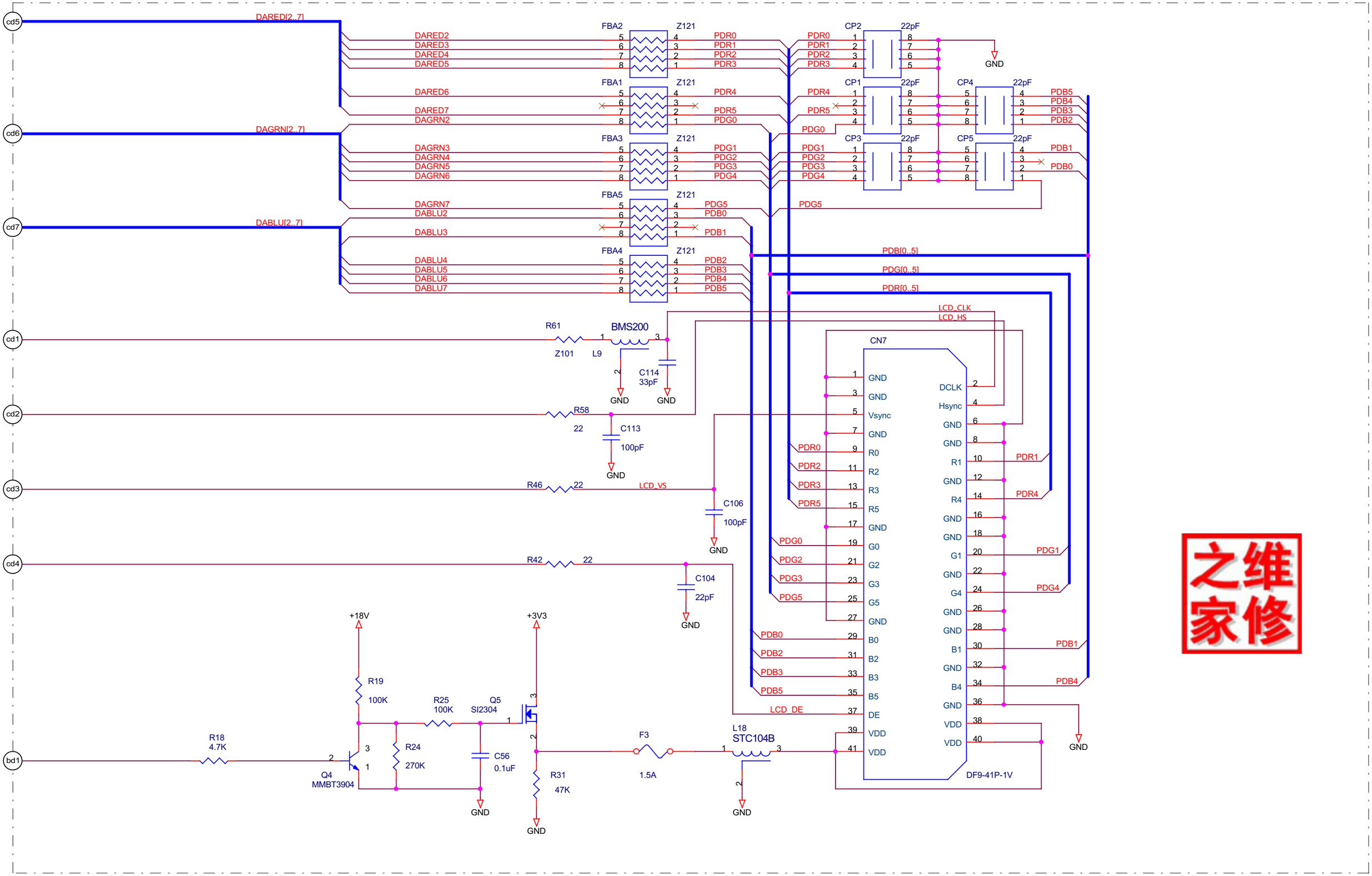
IC13 M51951B VIN GND RST_OUT
C96 0.1uF
RESETN
R33 4.7K
R32 10K
MMBT3904 Q6
R30 10K
R52 4.7K
R62 4.7K
TP7 RESET
R51 4.7K
R54 470
R53 470
R50 10K
R49 100
SOG_SELN
H_SLICE
TP11
TP10
IC5 MTV212M
C49 0.1uF
X2 11.0592MHz
C122 30pF
C123 30pF
C124 0.1uF
R80 4.7K
R81 4.7K
R82 4.7K
IC7 24C16
R63 4.7K
R64 4.7K
R65 4.7K
R66 4.7K
R67 4.7K
R68 4.7K
R69 4.7K
HDATA0
HDATA1
HDATA2
HDATA3
R70 #
R78 10K
R74 1K
R75 1K
R76 10K
IC6 74HC4053
R77 4.7K
C31 0.1uF
RXD
TXD
RP6 10K
RP7 10K
R29 #
R28 #
GPIO0
GPIO1
GPIO7
GPIO6
GPIO5
GPIO4
GPIO3
GPIO2
L34 Z301 KEY_OK
L33 Z301 KEY_MINUS
L16 Z301 KEY_PLUS
L17 Z301 KEY_BRTN
L19 Z301 KEY_CNST
L20 Z301 KEY_MENU
L21 Z301 KEY_PWR
L35 Z301 LED_AMB
L36 Z301 LED_GRN
CN5 S16B-PHDSS
OUT2+
OUT1-
OUT1+
OUT2-
R55 4.7K
R56 5.6K
C108 2.2uF
R12 1K
R13 15K
C3 2.2uF
R10 4.7K
R8 4.7K
R9 100
R11 100
L2 10uH
C101 0.1uF
C2 100uF
IC3 TDA7053A
C103 0.47uF
C102 0.47uF
C109 1000pF
R57 4.7K
R38 4.7K
C99 1000pF
AUD_GND
L14 Z301
L31 Z301
L15 Z301
L32 Z301
R91 470
C92 0.1uF
IC14A LM358
R93 1K
R92 15K
Q8 MMBT3906
R94 0
R90 4.7K
C137 2.2uF
R97 150
R89 0
MMBT3904 Q9
D11
R96 470
R98 0
R95 470
IC15A 74F14
IC16A 74F125
C93 0.1uF
C94 0.1uF
IC15B 74F14
IC16B 74F125
IC15C 74F14
IC16C 74F125
IC15D 74F14
IC15E 74F14
IC15F 74F14
IC16D 74F125
R99 100
CN2 MINIDIN4
R41 100
R39 100
C138 1000pF KEY_OK
C139 1000pF KEY_MINUS
C140 1000pF KEY_PLUS
C141 1000pF KEY_BRTN
C142 1000pF KEY_CNST
C143 1000pF KEY_MENU
C144 1000pF KEY_PWR
C145 1000pF LED_AMB
C146 1000pF LED_GRN
C147 1000pF OUT1+
C148 1000pF OUT1-
C149 1000pF OUT2+
C150 1000pF OUT2-

A-c


gm5020
IC18
Display Port
Analog Input
TMDS Receiver
PLL and DDS
Video Input
Host Interface
HDCP
Frame Store Interface
Join Grounds
GM5020
DVDD_3V3
AVDD_2V5
AVDD_3V3
PVDD_3V3
ADC_GNDA
PGND
GND
P_GND
+3V3
TCLK
XTAL
REXT
ADC_TEST
DARED2
DARED3
DARED4
DARED5
DARED6
DARED7
DAGRN2
DAGRN3
DAGRN4
DAGRN5
DAGRN6
DAGRN7
DABLU2
DABLU3
DABLU4
DABLU5
DABLU6
DABLU7
SDM-M51D(E)
3-5


cd5
cd6
cd7
cd1
cd2
cd3
cd4
bd1
DARED[2..7]
DAGRN[2..7]
DABLU[2..7]
DARED2
DARED3
DARED4
DARED5
DARED6
DARED7
DAGRN2
DAGRN3
DAGRN4
DAGRN5
DAGRN6
DAGRN7
DABLU2
DABLU3
DABLU4
DABLU5
DABLU6
DABLU7
FBA2
FBA1
FBA3
FBA5
FBA4
Z121
PDR0
PDR1
PDR2
PDR3
PDR4
PDR5
PDG0
PDG1
PDG2
PDG3
PDG4
PDG5
PDB0
PDB1
PDB2
PDB3
PDB4
PDB5
CP2
CP1
CP4
CP3
CP5
22pF
GND
PDB[0..5]
PDG[0..5]
PDR[0..5]
LCD_CLK
LCD_HS
LCD_VS
LCD_DE
CN7
DCLK
Hsync
Vsync
R0
R1
R2
R3
R4
R5
G0
G1
G2
G3
G4
G5
B0
B1
B2
B3
B4
B5
DE
VDD
DF9-41P-1V
R61
Z101
BMS200
L9
C114
33pF
R58
22
C113
100pF
R46
C106
R42
C104
22pF
+18V
+3V3
R19
100K
R25
100K
Q5
SI2304
R18
4.7K
R24
270K
Q4
MMBT3904
C56
0.1uF
R31
47K
F3
1.5A
L18
STC104B

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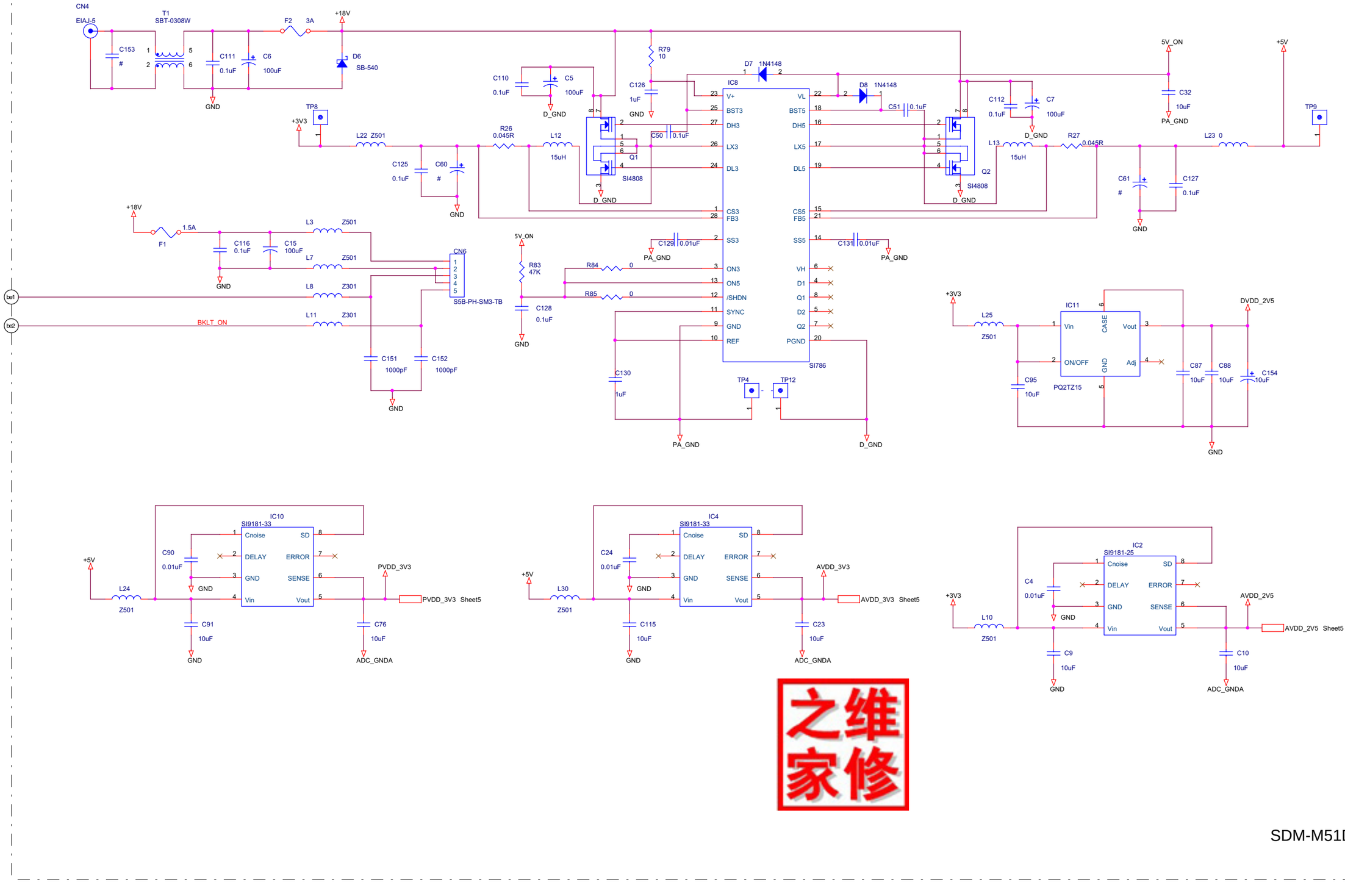
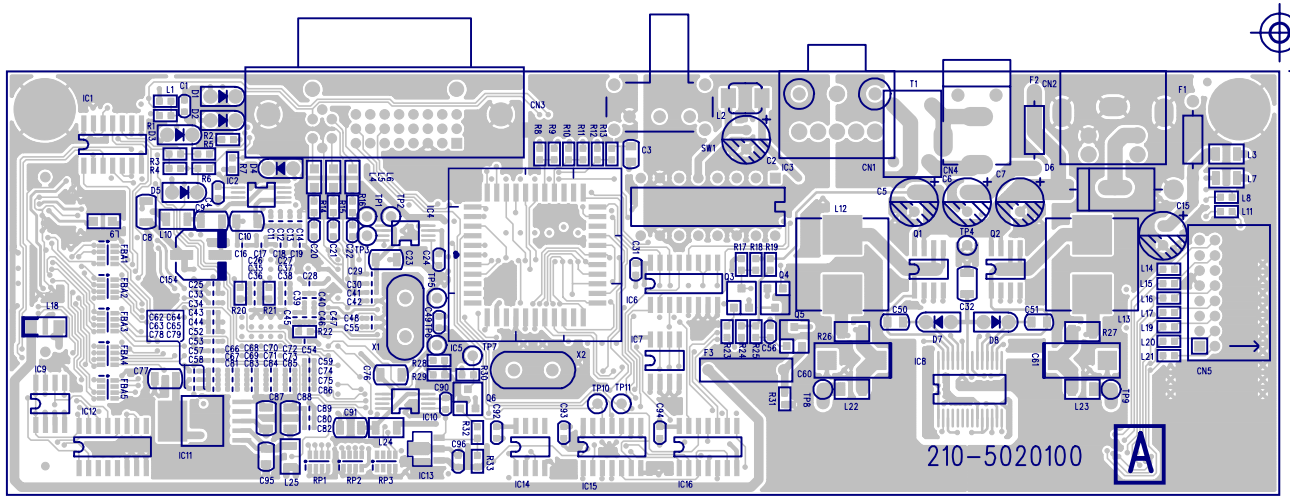

CN4
EIAJ-5
T1
SBT-0308W
C153
#
C111
0.1uF
C6
100uF
F2
3A
+18V
D6
SB-540
GND
C110
0.1uF
C5
100uF
D_GND
R79
10
C126
1uF
GND
IC8
V+
BST3
DH3
LX3
DL3
CS3
FB3
SS3
ON3
ON5
/SHDN
SYNC
GND
REF
VL
BST5
DH5
LX5
DL5
CS5
FB5
SS5
VH
D1
Q1
D2
Q2
PGND
SI786
D7 1N4148
D8 1N4148
C51 0.1uF
C112
0.1uF
C7
100uF
5V_ON
C32
10uF
PA_GND
+5V
TP9
TP8
+3V3
L22 Z501
C125
0.1uF
C60
#
R26
0.045R
L12
15uH
C50 0.1uF
Q1
SI4808
D_GND
L13
15uH
R27
0.045R
L23 0
Q2
C61
#
C127
0.1uF
C129 0.01uF
PA_GND
C131 0.01uF
+18V
F1
1.5A
L3 Z501
C116
0.1uF
C15
100uF
L7 Z501
L8 Z301
L11 Z301
CN6
S5B-PH-SM3-TB
BKLT_ON
be1
be2
C151
1000pF
C152
1000pF
R83
47K
C128
0.1uF
R84 0
R85 0
C130
1uF
TP4
TP12
+3V3
L25
Z501
IC11
Vin
ON/OFF
GND
CASE
Vout
Adj
PQ2TZ15
DVDD_2V5
C95
10uF
C87
10uF
C88
10uF
C154
10uF
IC10
SI9181-33
Cnoise
DELAY
GND
Vin
SD
ERROR
SENSE
Vout
C90
0.01uF
L24
Z501
PVDD_3V3
PVDD_3V3 Sheet5
C91
10uF
C76
10uF
ADC_GNDA
IC4
C24
0.01uF
L30
Z501
AVDD_3V3
AVDD_3V3 Sheet5
C115
10uF
C23
10uF
IC2
SI9181-25
C4
0.01uF
L10
Z501
AVDD_2V5
AVDD_2V5 Sheet5
C9
10uF
C10
10uF

3-8 A Board Top Side



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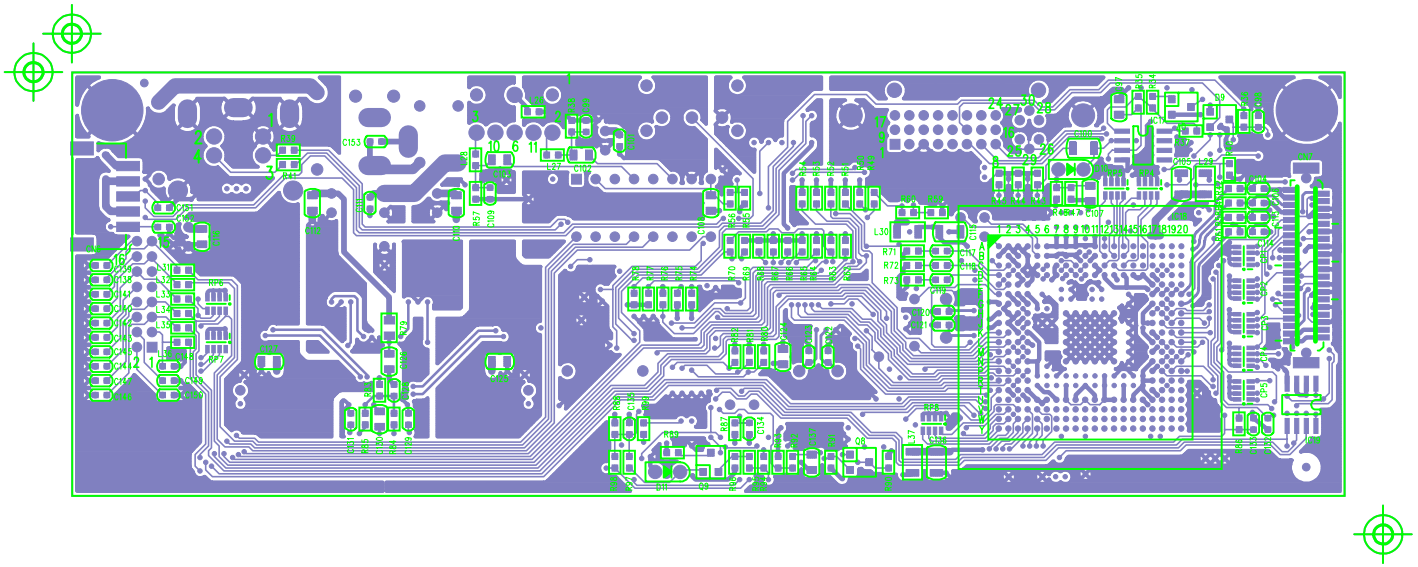
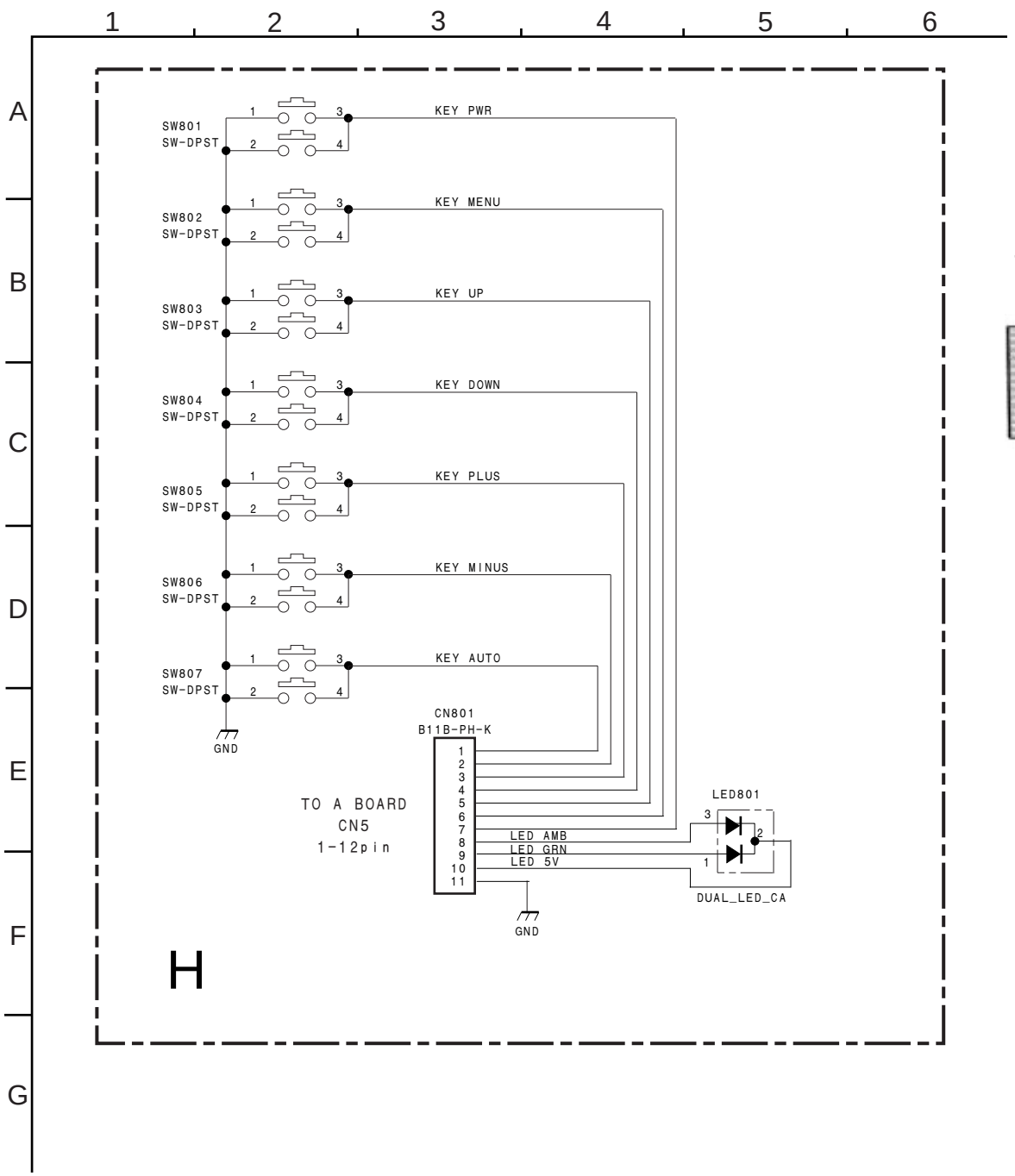
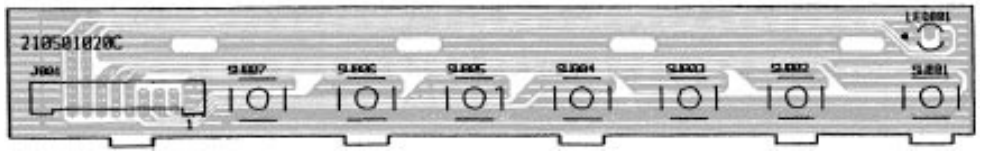
3-9 A Board Bottom Side



-- Schematic Diagram of H Board --



-- H BOARD (Conductor Side) --



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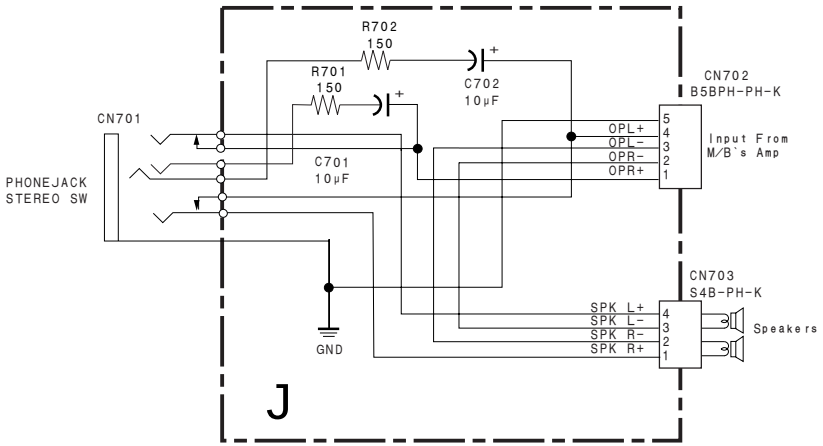
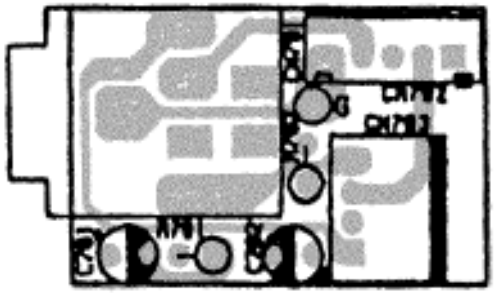
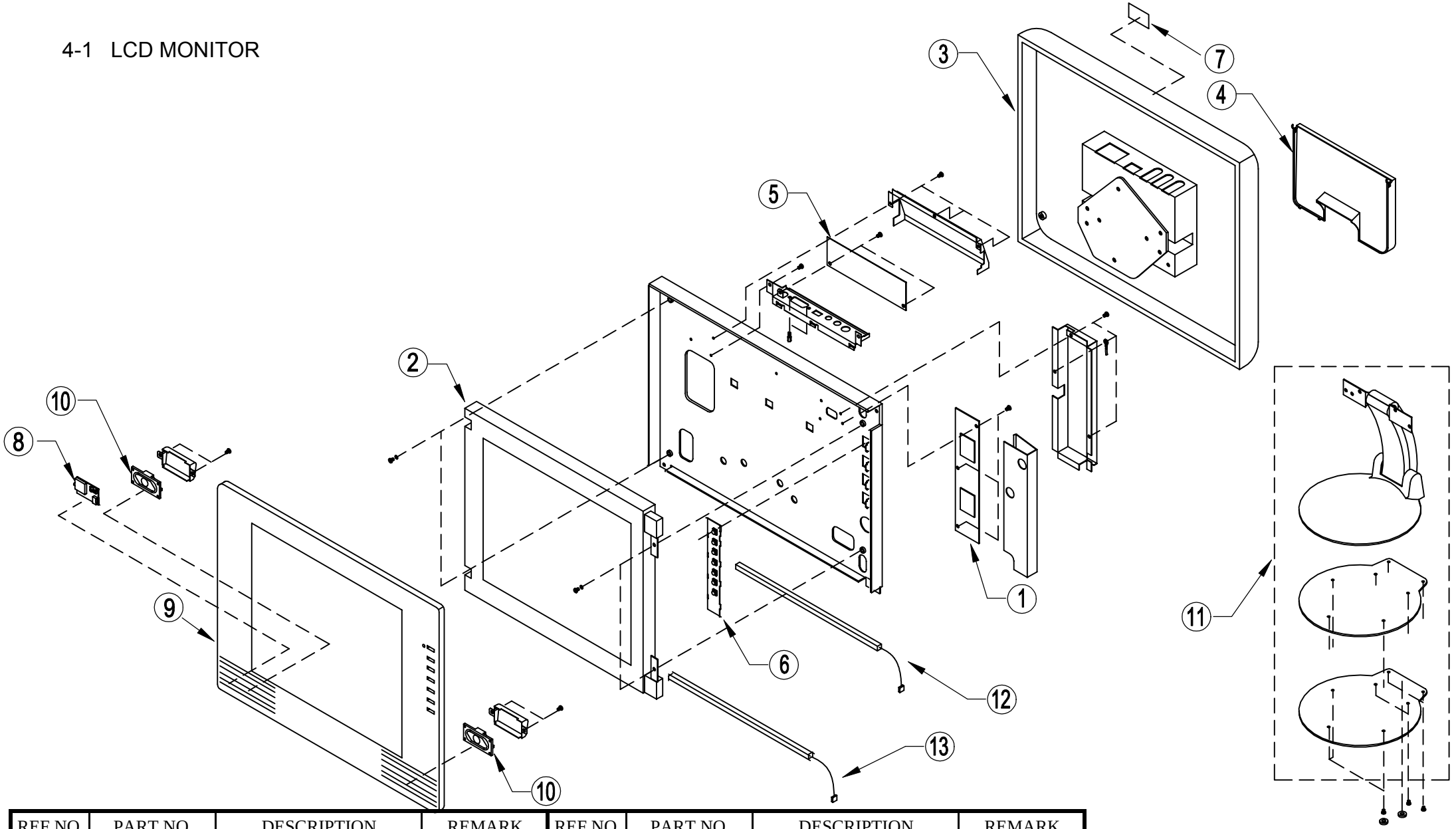
-- Schematic Diagram of J Board --



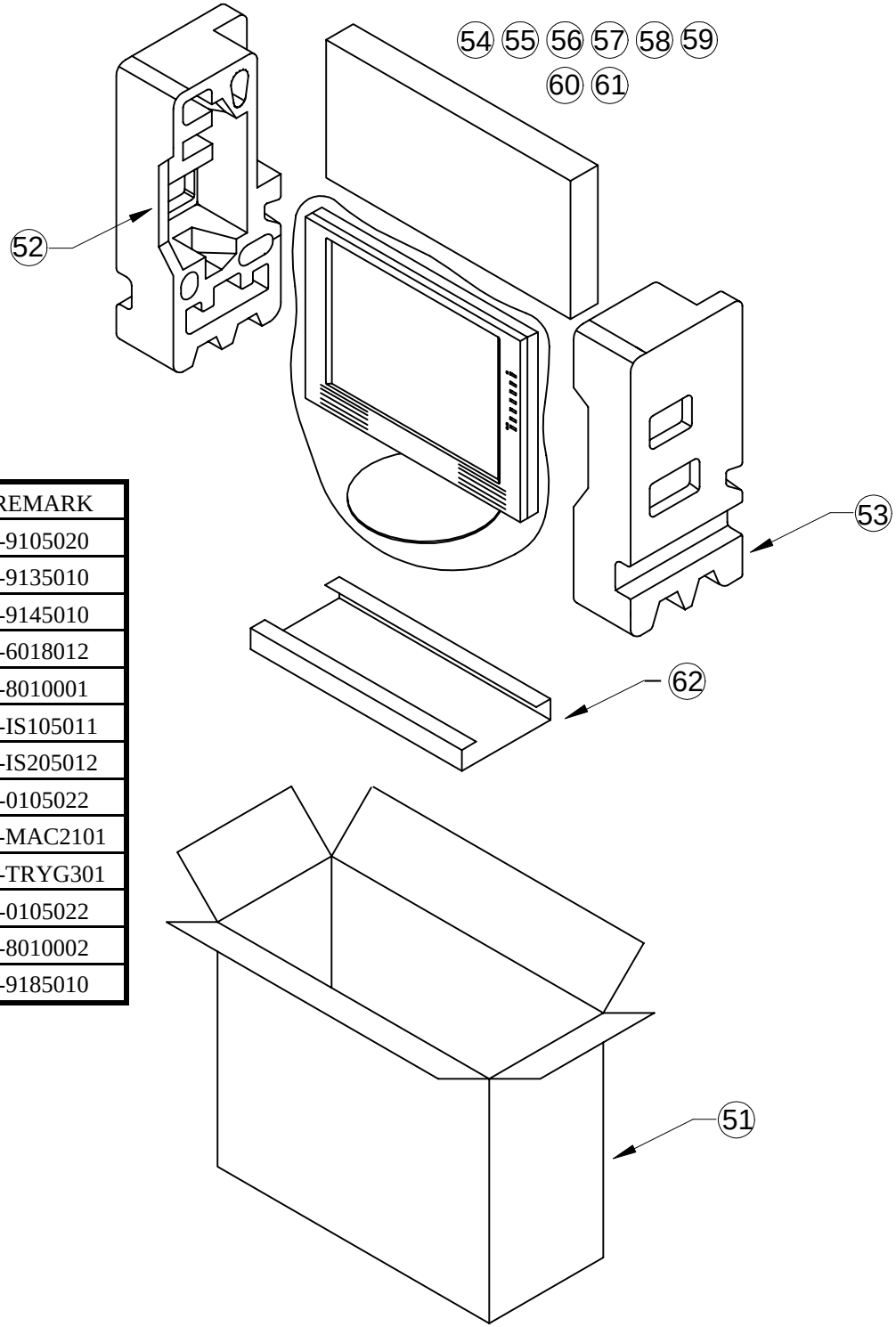
-- J BOARD (Conductor Side) --



4-1 LCD MONITOR



REF NO.	PART NO.	DESCRIPTION	REMARK	REF NO.	PART NO.	DESCRIPTION	REMARK
1	1-476-422-11	INVERTER	241-SM15012	8	A-1388-294-A	J MOUNT	209-5010040
2	1-803-808-11	PANEL, LCD	245-151LG01	9	X-4038-369-1	BEZEL ASSY	422-S-0105010
3	X-4038-946-1	CABINET ASSY, BACK	422-S-0305020	10	1-529-902-11	SPEAKER (20x40mm)	KSI40X20
4	4-079-642-21	COVER, REAR	422-0145020	11	X-4038-370-1	STAND ASSY	422-S-0205010
5	A-1272-429-A	A MOUNT	209-5020010	12	1-518-777-11	LAMP ASSY (UPPER)	N/A
6	A-1372-905-A	H MOUNT	209-5010030	13	1-518-777-21	LAMP ASSY (LOWER)	N/A
7	4-082-985-01	LABEL, INFORMATION	610-0605022				



REF NO.	PART NO.	DESCRIPTION	REMARK
51	4-082-376-01	INDIVIDUAL CARTON	600-9105020
52	4-079-619-01	CUSHION (LEFT)	404-9135010
53	4-079-620-01	CUSHION (RIGHT)	404-9145010
54	1-476-397-11	ADAPTOR, AC	201-6018012
55	1-823-049-11	CABLE, RGB (HD15-DVI)	186-8010001
56	1-765-720-21	CORD SET, POWER (U/C)	181-IS105011
	1-765-719-21	CORD SET, POWER (AEP)	181-IS205012
57	Pending	DISK, INFORMATION(CD-ROM)	617-0105022
58	1-778-967-21	ADAPTOR, CONVERSION (U/C)	204-MAC2101
59	1-785-512-31	CONNECTOR, D SUB (15P CHANGER) (AEP)	204-TRYG301
60	4-082-179-11	MANUAL, INSTRUCTION	612-0105022
61	1-757-372-11	CORD, CONNECTION (WITH PLUG)	186-8010002
62	4-080-078-01	BOARD, SPACER	604-9185010